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## VIDEO TICKET COUNTER

### CROSS REFERENCE TO RELATED APPLICATIONS

This application claims the benefit of U.S. Provisional Patent Application  
5 number 60/247,061 filed on November 10, 2000 and is incorporated herein by  
reference.

### BACKGROUND OF THE INVENTION

This invention addresses the problem created by the practice in the amusement  
and arcade business of regarding customers with large numbers of redeemable tickets  
10 which are typically emitted from a gaming machine in a continuous strip from a ticket  
supply roll in the machine. The business operator needs to be able to count the  
tickets, account for all tickets to avoid fraud and theft, and to destroy tickets once  
redeemed to prevent reuse.

Two ticket counters for the purpose described are known to be currently  
15 available and in use at the present time. Both are designed for "standard card tickets"  
and do not work with a new form of "paper" tickets now in use by the inventor. The  
two known machines are provided by Smart Industries and by Deltronics Labs.  
(Patent #5,211,093).

The problems arise because of the differences between typical "theater" type  
20 tickets and the new "paper" type tickets. Problems arise from two fundamental  
differences. One is that the method of "reading" the "paper" tickets differs greatly  
from that of reading the "standard" tickets. A second source of problems is the  
differences in the physical dimensions and form of the various tickets. Not only are

there basic differences between the forms of the "paper" and the "standard" tickets, but also there are variations in the dimensions of "standard" type tickets produced by different manufacturers. For example, tickets produced by Globe Ticket and Label Company are one 1/32 inch narrower than those produced by National and Muncie.

5 In this last situation of small differences in the physical dimensions of the tickets, the user is required to readjust the ticket guides of the machine if the tickets in use are of different dimensions from those to which the manufacturer set the machine at the factory. The "standard" tickets have a small notch or separation portion between tickets that provides the mechanism for triggering the counter as the tickets pass  
10 through the counting machine. The machines currently in use employ a wheel driven mechanism for the ticket transport. This mechanism does not transport the "paper" tickets well.

The currently used machines perform only limited functions. They count the tickets; they display the count on an LED numerical display; they print a receipt for  
15 the customer; and lastly they destroy the ticket with a shredding mechanism.

### **SUMMARY OF THE INVENTION**

The present invention provides two significant improvements. First, its improved ticket transport mechanism is capable of effectively transporting both the new "paper" type tickets as well as the "standard" type tickets, including those with  
20 different physical dimensions. Secondly, it provides a video counting system that is capable of multiple functions. The video counting system can not only display the ticket count in a conventional numerical manner, but also the display screen can be used for numerous other visual communications, such as advertising, showing movies

or cartoons to the customer, or displaying other information of interest to a customer, etc.

When a customer inserts a long string of tickets to be counted an appreciable amount of time is required for the counting process. The video system can be arranged to enable the customer who is waiting while the tickets are being counted to be amused by playing a trivia quiz game, or playing dexterity games, or some other similar type diversion.

The video enhancement of the counting system would be more fun and much more interesting for the customer than simply watching an LED counter display, and thus would encourage customer use of the counter.

A computer is needed to drive the video. The computer would expand the capabilities of the system beyond that of simply counting tickets. The computer would enable the system not only to count the tickets, count the receipts printed and keep track of statistics, but also would enable the system to allow access by remote computers useful for verifying the authenticity of receipts.

### **BRIEF DESCRIPTION OF THE DRAWINGS**

Figure 1 is horizontal side view of the ticket transport mechanism showing the belts and rollers for conveying the tickets past the sensors. View 1 and view 2 in the drawing represent the sensors for reading the data on the tickets.

Figure 2 is a plan view of the transport mechanism showing the relationship of the two belts.

Figure 3 shows both sides of the new "paper" ticket and the positioning of the longitudinal edge bands for emplacement of the bar codes on one side of the ticket and the opaque squares at the corners of the other side of the ticket.

Figure 4 shows photocopies of two of the standard arcade type tickets.

## **DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS**

### **Overall Description**

The invention solves the problem of effectively transporting tickets of various  
5 sizes and paper types and of accurately counting by holding the tickets centered  
between two continuous belts as they are carried through the counting machine. The  
belts and the tickets are each of such width that the longitudinal edges of the tickets  
extend beyond the edges of the belts so that sensors positioned at the sides of the belts  
can read information printed in bands running the length of the ticket. The sensors  
10 send the count data to a computer equipped with a computer program to tally the  
count. The output of the computer program sends the count information to a video  
display terminal. If desired, the data can be sent to another remotely located computer  
for collecting similar data from a plurality of counting machines, whereupon  
centralized accounting and verification procedures for the entire business can be  
15 executed. Upon completing passage through the counting mechanism, the tickets then  
pass through a conventional shredding mechanism and to waste collection.

### **The New "Paper" Tickets**

The new "paper" tickets are printed on a continuous strip of suitable paper  
stock about one to one and a quarter inches in width. The ticket stock is sufficiently  
20 translucent to permit sensors to read light passing through the stock. Individual  
tickets are formed by simple perforations across the strip at about every one and one-  
half to two inches. The perforations serve to enable separation of the tickets  
individually from the strip.

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both the bar codes and the counting markers is that they be printed in the longitudinal bands so that the reading sensors can see them. This method of locating the information to be sensed and transporting the tickets is not only applicable to the new "paper" tickets but also to "standard" and card stock tickets.

## 5 The Transport Mechanism

The concept of the transport mechanism is that as a ticket is inserted into the counting machine it is gripped between two endless belts moving at the same speed. The belts transport the ticket past sensors that generate counting signals and read the bar code. The sensors send the signals they have generated to a computer program for  
10 data processing and analysis.

Refer to the figures. Tickets are inserted through a slot, the width of which is the width of the tickets to provide good alignment of the ticket for passing by the sensors. Optical sensor H, located at the insertion slot, detects the presence of the ticket as it is inserted and starts the motor (not shown) that drives wheels A and C  
15 over which endless belts E and F pass. Wheels A and C are preferably, but not necessarily, of the same diameter. In any case, they are sized and geared together to rotate in opposite directions to produce the same tangential velocity so that belts E and F are moved linearly in the same direction at essentially the same speed. The same belt speed is essential to prevent bunching, stretching or tearing of the tickets.  
20 As the ticket is inserted and as the belts begin to move, the leading edge of the ticket is gripped tightly between them and the ticket then moves along with them.

Belt F is a flat belt sufficiently narrow to permit the  $\frac{1}{4}$  inch bands on each longitudinal edge of the ticket to extend over the edge of the belt so that sensors, viewer 1 and viewer 2, can read the ticket as it passes by them. Belt E is a small,



round belt whose function is to provide pressure on the ticket and lower belt thus providing strong gripping of the ticket between the belts and thereby keeping the ticket properly aligned as it is transported through the machine. The machine is capable of handling different widths of tickets by adjusting the width of the insertion slot and by sizing the lower flat belt F to properly allow the sensors to see the edge bands. As an example, one standard width for a ticket is  $1 \frac{5}{32}$  inches. For such a ticket, belt F could be  $\frac{3}{8}$  to  $\frac{1}{2}$  inch wide. Pressure belt E would be about  $\frac{1}{8}$  inch diameter.

Rollers B and D are freewheeling and rotate with the movement of the two belts. Roller G is an idler roller used to keep the two belts pressed together until after the ticket has passed the sensors.

Pressure P on the belts can be controlled by adjusting the spacing between the drive wheels A and C. Generally, the tickets will be fed through the machine in a continuous string. The pressure should be adjusted so that the belts will grip the ticket string sufficient to draw it into the machine but light enough to avoid tearing the string apart at a perforation if a person continues to hold the string after inserting the first ticket.

Viewer 1 reads the upper side of the ticket. Viewer 2 reads the under side of the ticket. One viewer sees the opaque area and the color of the ticket and generates a series of short pulses and one long pulse. These pulses can be used to count the tickets.

The other viewer sees the pulses created by the bar code. This reading can be used to verify that the ticket is from the establishment operating the games, or to identify the particular game played, or to distinguish between tickets of different

After passing by the sensors and over the roller G the tickets exit the counting mechanism and go to waste processing for destruction by conventional means.

The customer can repeat this process for additional strings of tickets until all tickets have been counted. A "Finished" button is then pressed, ending the counting sensory process. This signals the computer program that the batch scanning process is completed and that the tallying and accounting processes can be activated.

The pulses generated by the sensors, viewer 1 and viewer 2, are transmitted to the computer containing the data processing program, where they are tallied and sorted. A receipt for the customer is printed. The receipt can include a receipt number, the bar code of the establishment, the number of tickets and other pertinent information.

The data processing program can be capable of receiving data and processing data from a plurality of ticket counting machines and combining that data into an overall report of the activity for the entire business enterprise.

The tallying program on the computer can be accessed from a remote computer, thereby providing greater flexibility for management access to the data reports thereby affording economies of time and equipment.

#### The Display Monitor

5           The display monitor is located at or near the ticket counting machine so the customer can view it as the tickets are processed. The monitor is used to display either of or both the ticket counting results or, for entertainment purposes, graphical material of almost any variety that is of interest to the customer. For example, the monitor could, while the ticket counting process is taking place, show entertainment,  
10   such as short movie clips, or cartoons. The customer could play trivia or quiz games, or interactive dexterity games, etc. for which bonus amounts of tickets could be awarded. The bonus tickets would encourage additional play. The monitor could display video and audio advertising. The video display would be more fun for the customer and more interesting than an LED display, thereby encouraging use of the  
15   counter, especially when large numbers of tickets require lengthy counting times.